

## Exercise 2.5

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Solve the following linear equations.

1.  $x/2 - 1/5 = x/3 + 1/4$

Solution:

$$x/2 - 1/5 = x/3 + 1/4$$

$$\Rightarrow x/2 - x/3 = 1/4 + 1/5$$

$$\Rightarrow (3x - 2x)/6 = (5 + 4)/20$$

$$\Rightarrow 3x - 2x = 9/20 \times 6$$

$$\Rightarrow x = 54/20$$

$$\Rightarrow x = 27/10$$

2.  $n/2 - 3n/4 + 5n/6 = 21$

Solution:

$$n/2 - 3n/4 + 5n/6 = 21$$

$$\Rightarrow (6n - 9n + 10n)/12 = 21$$

$$\Rightarrow 7n/12 = 21$$

$$\Rightarrow 7n = 21 \times 12$$

$$\Rightarrow n = 252/7$$

$$\Rightarrow n = 36$$

3.  $x + 7 - 8x/3 = 17/6 - 5x/2$

Solution:

$$x + 7 - 8x/3 = 17/6 - 5x/2$$

$$\Rightarrow x - 8x/3 + 5x/2 = 17/6 - 7$$

$$\Rightarrow (6x - 16x + 15x)/6 = (17 - 42)/6$$

$$\Rightarrow 5x/6 = -25/6$$

$$\Rightarrow 5x = -25$$

$$\Rightarrow x = -5$$

4.  $(x - 5)/3 = (x - 3)/5$

Solution:

$$(x - 5)/3 = (x - 3)/5$$

$$\Rightarrow 5(x - 5) = 3(x - 3)$$

$$\Rightarrow 5x - 25 = 3x - 9$$

$$\Rightarrow 5x - 3x = -9 + 25$$

$$\Rightarrow 2x = 16$$

$$\Rightarrow x = 8$$

5.  $(3t - 2)/4 - (2t + 3)/3 = 2/3 - t$

Solution:

$$(3t - 2)/4 - (2t + 3)/3 = 2/3 - t$$

**NCERT Solution For Class 8 Maths Chapter 2- Linear Equations in One Variable**

$$\begin{aligned} &\Rightarrow ((3t - 2)/4) \times 12 - ((2t + 3)/3) \times 12 \\ &\Rightarrow (3t - 2) \times 3 - (2t + 3) \times 4 = 2 \times 4 - 12t \\ &\Rightarrow 9t - 6 - 8t - 12 = 8 - 12t \\ &\Rightarrow 9t - 6 - 8t - 12 = 8 - 12t \\ &\Rightarrow t - 18 = 8 - 12t \\ &\Rightarrow t + 12t = 8 + 18 \\ &\Rightarrow 13t = 26 \\ &\Rightarrow t = 2 \end{aligned}$$

**6.  $m - (m - 1)/2 = 1 - (m - 2)/3$**

**Solution:**

$$\begin{aligned} &m - (m - 1)/2 = 1 - (m - 2)/3 \\ &\Rightarrow m - m/2 - 1/2 = 1 - (m/3 - 2/3) \\ &\Rightarrow m - m/2 + 1/2 = 1 - m/3 + 2/3 \\ &\Rightarrow m - m/2 + m/3 = 1 + 2/3 - 1/2 \\ &\Rightarrow m/2 + m/3 = 1/2 + 2/3 \\ &\Rightarrow (3m + 2m)/6 = (3 + 4)/6 \\ &\Rightarrow 5m/6 = 7/6 \\ &\Rightarrow m = 7/6 \times 6/5 \\ &\Rightarrow m = 7/5 \end{aligned}$$

**Simplify and solve the following linear equations.**

**7.  $3(t - 3) = 5(2t + 1)$**

**Solution:**

$$\begin{aligned} &3(t - 3) = 5(2t + 1) \\ &\Rightarrow 3t - 9 = 10t + 5 \\ &\Rightarrow 3t - 10t = 5 + 9 \\ &\Rightarrow -7t = 14 \\ &\Rightarrow t = 14/-7 \\ &\Rightarrow t = -2 \end{aligned}$$

**8.  $15(y - 4) - 2(y - 9) + 5(y + 6) = 0$**

**Solution:**

$$\begin{aligned} &15(y - 4) - 2(y - 9) + 5(y + 6) = 0 \\ &\Rightarrow 15y - 60 - 2y + 18 + 5y + 30 = 0 \\ &\Rightarrow 15y - 2y + 5y = 60 - 18 - 30 \\ &\Rightarrow 18y = 12 \\ &\Rightarrow y = 12/18 \\ &\Rightarrow y = 2/3 \end{aligned}$$

**9.  $3(5z - 7) - 2(9z - 11) = 4(8z - 13) - 17$**

**Solution:**

$$\begin{aligned} &3(5z - 7) - 2(9z - 11) = 4(8z - 13) - 17 \\ &\Rightarrow 15z - 21 - 18z + 22 = 32z - 52 - 17 \end{aligned}$$

**NCERT Solution For Class 8 Maths Chapter 2- Linear Equations in One Variable**

$$\begin{aligned}\Rightarrow 15z - 18z - 32z &= -52 - 17 + 21 - 22 \\ \Rightarrow -35z &= -70 \\ \Rightarrow z &= -70/-35 \\ \Rightarrow z &= 2\end{aligned}$$

**10.  $0.25(4f - 3) = 0.05(10f - 9)$**

**Solution:**

$$\begin{aligned}0.25(4f - 3) &= 0.05(10f - 9) \\ \Rightarrow f - 0.75 &= 0.5f - 0.45 \\ \Rightarrow f - 0.5f &= -0.45 + 0.75 \\ \Rightarrow 0.5f &= 0.30 \\ \Rightarrow f &= 0.30/0.5 \\ \Rightarrow f &= 3/5 \\ \Rightarrow f &= 0.6\end{aligned}$$

